

ABSTRACT OF THE DISCLOSURE

A high aspect ratio microelectromechanical system device for measuring an applied force and having a suspension structure for compensating out-of-plane displacements of the device proof mass, wherein the device includes a frame; a proof mass coupled to the frame for in-plane motion along an axis of symmetry, the proof mass having first and second sets of spaced apart capacitor plates projected therefrom on each side of the axis of symmetry and oriented substantially crosswise to the axis of symmetry; and third and fourth sets of spaced apart capacitor plates oriented substantially crosswise to the axis of symmetry of the proof mass and intermeshed respectively with the first and second sets of capacitor plates, the third and fourth sets of capacitor plates being suspended for motion relative to the frame about respective first and second axes of motion oriented substantially parallel with the axis of symmetry of the proof mass.